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NO. VI.

Εν συναρμογᾳ αδιαλυτῳ κατα λογον αριστον.

Plat Timaei Locri. de anima mundi.

In an indissoluble connection and agreement according to the rules of the best reason.

The mind is strengthened by exercise, and weakened by disuse. Intellectual exertion is as necessary to the production of strength and elegance of mind, as bodily exercise, to the formation of bodily proportion and vigour. The corporeal system, fed on dainties, loses its firmness: the mind, nurtured by light effusions and formed under superficial regimen, gradually decays; in either case, disease is engendered. As weakness of nerves, cannot prevent the blows of a powerful assailant from taking effect, so intellectual decrepitude will necessarily preclude its unhappy objects, from detecting the schemes of cunning or the artifices of ambition; from basking in the sunshine of literary eminence, or enjoying, as becomes a human being, opulence obtained by honest industry.

To render man capable of judging for himself, of adopting a course of conduct, from which allurements cannot entice him, to separate the semblance of truth from the reality, is to be effected only by strengthening the energies of the mind. This object, so desirable in itself, is not the work of a few years; it requires time and proper discipline; nor, are all capable of that intellectual strength, which seems necessary in order to pass through life, gleaming with meteoric delusions; leading by false lights the mind to darkness and guilt, but by which lights it can never return to soundness and repose. Allowing, however, for that innate debility, which seems, constitutionally to characterize the mind of some, yet much may be done towards confirming its growth, and preventing it from impositions, by pursuing rigidity of mental and corporeal discipline. If the mind, in its infancy, governed much in its future character by circumstances, be left to itself, or which will prove equally pernicious, be initiated superficially into those studies, which from their nature are calculated to ennoble, adorn and strengthen its faculties, it must inevitably prove a barren waste, where few plants spring up, and those which do, be tainted with poison, which in the end will destroy themselves and those which surround them.

The acquisition of knowledge is slow; the mind, by degrees, attains to eminence, and eminence in science or art, presupposes accurate and extensive *thought*. In fact, *thought* or *reflection* constitutes the difference between the ignorant and learned, the wise and unwise. Not given to reflection, the brightest natural talents will soon decay, and science, placed at a distance, will smile with contempt, and elude their grasp. Neglecting the exercise of reason and judgment in youth is often fatal to them afterwards; accustomed to lethargy, it is with difficulty, objects, impressive in their nature, can awake the mental energies. From their importance, therefore, it is necessary to excite, as soon as possible, the discriminating powers of youth to action. Thinking youth will make thinking men. Juvenile reflection is not very extensive or accurate; but, such as it is, it should be elicited. It will in time produce something of a solid and durable kind, unless utter or an extreme want of mind, prevent.—Our first ideas are derived from external objects; the mind by analysing and compounding these ideas, generates others. But the analysis and composition are limited to a small extent in young students, and even in those whose faculties have not been properly disciplined; and arguments or opinions built on a weak and circumscribed basis, must often be incorrect, and highly absurd.

The *habit of thinking, or examining* can be generated earlier than most persons are aware of, and in *instruction*, it should be made the chief object. From the want of reflection, man is guilty of many crimes, and learning neglected, because, judgment does not point out its value. Habits grow imperceptibly, though rapidly and strong, and that of mental exercise, or its opposite, like all others, strengthens with years. To awaken the mind to action after a lapse of time, and to restrict its vagaries within proper bounds, will be as difficult to him who attempts it, as for one to abstain from a vice which has long been continued. Such being the barrier to after improvement and mental exertion, the quicker, we can set the mind at work, and render it dependent on its own operations, the more will the desired object be accomplished, scholastic discipline be accelerated, and the less liable will it be, when it is matured, to form wrong notions of men and things. Hence, the general condemnation by sensible men, of the modes of instruction, pursued in most of our seminaries. According to these, the *memory* alone is called into action, and the reasoning powers, which should be exercised on the facts treasured up by the retentive faculty, are wholly neglected. A congeries of facts, resting in the mind without any arrangement, may make, as has been justly observed, a *learned fool*, but not a man of sense. Memo-

ry furnishes the terms to be employed in communicating ideas, and is the repository of the collected events, which have transpired during a long succession of ages; judgment and reason teach the proper application of these terms, and draw conclusions, useful to the conduct of man, as a member of the body politic and the christian world. These faculties characterize the mind *well cultivated*, and entitle its decisions to attention. Instances of great memory are recorded, connected with a childish understanding, and surely no man would prefer an excess of the former with a proportionate deficiency in the latter.

As fatal as this principle is, it is to be regretted, that the practice of making youth commit to memory words *alone*, has prevailed to a great extent in the United States. The issue is dangerous in the extreme. If they be accustomed to learn without understanding what they learn, there is no doubt, but, that superficial views of things and study will satisfy them; a habit of mind productive of endless errour. Prone to indolence the intellectual powers would rather receive whatever may be offered to them, than to inquire and to examine into abstract or argumentative discussions. This propensity, almost inherent in our nature, should be counteracted: and were youth, when under the superintendance of preceptors, made to *think* instead of *chatter*, the world would not be troubled with so many absurd and erroneous opinions, or conceited smatters.*

This *system of words* claims the interference of the public, because it is a death blow to the exercise of thought and to all solid instruction. It presents to the eye the mere *word*, and the memory treasures up the sound. If the signification and the application of it be not known, the word λογος would be equally as useful to one who knows nothing of the Greek language. It is of vital importance to impress on the mind the meaning of terms or signs. Of what *use* is it to have a superabundance of sounds in the mind, without the knowledge of their application? —Words or sounds improperly used excite ridicule, which is in proportion to the advantages offered for a correct acquisition of language. Words are the symbols or signs, by which we communicate our ideas, and the better we understand them, the more will our composition and conversation partake of elegance and perspicuity. What the ancient Greek philosophers called, Σημειωτικη, or the doctrine of *signs*, should in instruction claim particular attention: the most usual of these signs are words, and aptly enough termed also Λογικη, *Logic. The business of this is to consider the nature of signs, the mind makes use of for the understanding of things, or conveying its knowledge to others.*†

I shall conclude with an extract from Mr. Stewart, a celebrated metaphysical writer,* shewing the necessity of attaching *ideas* to *words*. "In surveying a library of books," says he, "we speak of the volumes piled upon its shelves, as *treasures* or *magazines* of the knowledge of past ages; and contemplate them with gratitude and reverence, as inexhaustible *sources* of instruction and delight to the mind.—On such occasions, we seldom recollect, that nothing is perceived by the eye but a multitude of BLACK STROKES DRAWN UPON WHITE PAPER, and that it is our own acquired habits which communicate to these *strokes* the whole of that significancy, whereby they are distinguished from the unmeaning scrawling of an infant or a changeling. The knowledge which we conceive to be preserved in books, like the fragrance of a rose, or the gilding of the clouds, depends, for its existence, on the *relation* between the object and *percipient mind;* and the only difference between the two cases is, that in the one, this relation is the local, and temporary effect of conventional habits; in the other, it is the universal and unchangeable work of nature. The art of printing, it is to be hoped, will in future render the former relation, as well as the latter, coeval with our species; but, in the past history of mankind, it is impossible to say how often it may have been dissolved. What vestiges can now be traced of those scientific attainments which, in early times, drew to *Egypt*, from every part of the civilized world, all those who were anxious to be initiated into the mysteries of philosophy? The symbols which still remain in that celebrated country, inscribed on eternal monuments, have long lost the correspondent *minds* which reflected upon them their own intellectual attributes. To us they are useless and silent, and serve only to attest the existence of arts, of which it is impossible to unriddle the nature and object.

Variis nunc sculpta figuris
Marmora, trunca tamen visuntur mutaque nobis;
Signa repertorum toimur, cecidere reperta.

What has now been remarked with respect to *written characters*, may be extended very nearly to *oral language*. When we listen to the discourse of a public speaker, eloquence and persuasion seem to issue from his lips; and we are little aware, that we ourselves infuse the soul into every word he utters. The case is exactly the same when we enjoy the con-

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* See the preface to the Juvenile Expositor or American School-class book No. 4. for further observations on the tendency of learning *words* without *ideas*.

† Locke on the human understanding; quoted by Stewart in his dissertation on the progress of mataphysical, ethical and political philosophy.

* Animo vidit; ingenio complexus est; eloquentiâ illuminavit.

Paterculus concerning Cicero.

These subjects he saw by the power of his mind; he comprehended them by his understanding, and by his eloquence he cast a brightness upon them.

versation of a friend. We ascribe the charm entirely to his voice and accents; but without our co-operation, its potency would vanish."

The intimate *relation*, between the *object* and the *percipient mind* is discussed in a masterly manner by Mr. Stewart: his observations are well calculated to abolish the practice of that mode of instruction which consists wholly in the commitment of words to memory, without a knowledge of their *signification* and *application*; and to enforce that system, to which every sensible man will assent, which elicits *thought* and *reflection*, and these excite to action all the intellectual energies. I would particularly recommend to instructors the metaphysical writings of Reid and Stewart, from which they might reap much benefit and become acquainted with the laws and operations of the mind, an acquaintance with which is of the highest importance in communicating knowledge to youth.*

W.

THE GLEANER.

NO. IV.

It may justly be reckoned among the merciful dispensations of Providence, that by the constitution of our minds we are, when incapable of fully exercising any one of the intellectual faculties, incapable also of being rendered sensible of the deficiency. The person whose perception of external objects is defective, will acknowledge that the objects pointed out to his observation were not perceived by him in that particular instance, but is not sensible that he does not, in general, make as good use of his senses as others do. The same may be observed with respect to all their intellectual powers: but it is with regard to the power of reasoning, that this unconsciousness of our own deficiency is productive of the most unpleasant and pernicious consequences; for where we are incapable of discerning the agreement or disagreement between ideas, there is no possibility of convincing us that those which we suppose to be inseparable have no connexion, or the reverse.

Hence arise the eternal disputations carried on by persons who are utterly incapable of examining the real merits of the question in dispute. Hence the confidence with which the wise in his own conceit utters the *pompous nothings* which he mistakes for arguments of weight irresistible. Hence the violence with which people expose one side or the other, when the matter in debate is beyond their capacity to comprehend, and concerning which they are utterly destitute of the necessary information.

I make no doubt, that in the society of man, instances of this sort may sometimes occur; but in female society their occurrence is certainly not unfrequent. Is it not, then, a powerful argument for the cultivation of the reasoning faculty, that it would put an end to the vain attempts at reasoning upon subjects, concerning which, from our situation or circumstances, we can only obtain limited and partial information? Knowing by experience the degree of attention it required to enable us to investigate the subjects we have thoroughly examined, we shall certainly not be forward to decide on those which we have had no opportunity to examine or investigate. Having obtained clear views of such subjects as we have applied our minds to, we shall not think ourselves entitled to pronounce on those of which we can only have a glimpse.

These considerations ought to have some weight, in balancing the advantages to be derived to both sexes from the cultivation of that faculty, whereby we are enabled to make any advances in the discovery of truth, or in the acquisition of useful knowledge. It is indeed professedly the prime object in the education of young men. When, therefore, young men, after all the pains bestowed, are still incapable of reasoning justly, are we thence to conclude, that the inability arises from a natural defect in the intellect? "This," to answer the question in the words of Mr. Locke, "is the case of very few." The greater number is of those, whom the habit of never exerting the thoughts has disabled: the powers of their minds are starved by disuse, and have lost that reach and strength which nature fitted them to receive from exercise.

It is not impossible that years may be spent at an university, without acquiring that quick perception of truth which is the great desideratum towards sound reasoning. The knowledge of mathematical science, which is generally deemed an all-sufficient aid in the cultivation of the reasoning powers, will according to my view of the subject, be seen to afford only partial assistance in their cultivation. By habitual attention to the ideas

* Since the above was written, I have seen a work, lately published in New-York, by John Bristed, Esq. called the Resources of the United States, in which (in the 6th chapter, Literature of the U. States,) are many excellent observations on the present vicious modes of instruction; the incapacity of the generality of instructors; the defects in our colleges; the little attention paid to classical literature, &c. &c. I hope this work, executed by one whose mind is stored with the sentiments of the sublime writers of Greece and Rome, as well as of the best modern writers, and containing much valuable fact, will obtain that circulation and attention to which it is entitled. SINT HIC ETIAM SUA PRÆMIA LAUDI. *Let merit ever here obtain its reward.*

VIRGIL. Æn. I.

contained in propositions that are capable of demonstration, the mind will acquire a facility in discerning truths of that particular class. But though habit may have rendered this peculiar exercise of attention easy and delightful, if attention has never been directed to truths of another description, these will not be discovered without effort; and the man who piques himself on his quick discernment of truths that are susceptible of demonstration, will, of all others, be least inclined to make an effort for the purpose of ascertaining probabilities.

On this principle it has been remarked, that many very eminent mathematicians, committing themselves on other subjects, have manifested no superior powers of reasoning or argument; the lighter, and even the stronger shades of evidence, appeared to have escaped them: dealing in their vocation only with *certainties*, they become less qualified to judge of probabilities; and never having occasion to settle the meaning of any disputed term, they are less qualified to mingle in a debate, the issue of which depends on the correct use of terms, having, perhaps, in common and philosophical language, several different acceptations.

It may, on the other hand, be observed, that when attention has been solely occupied in weighing or examining the form of evidence, on subjects that admit not of demonstration, the mind will rarely acquire that accuracy and precision which have to the mathematical student become habitual. Hence the advantage of exercising the attention on every various species of knowledge. If the power of reasoning be indeed the glory of our nature, whatever tends to give us the enjoyment of that power ought to be held precious; but if, with all the advantages of superior education, men sometimes exhibit proofs of habitual inattention to the agreement or disagreement of ideas, in their own reasonings, or in the reasonings of others, it is not surprising that women should still more frequently be incapable of reasoning with accuracy or precision.

Even where great pains and care are bestowed on the cultivation of the female mind, it is seldom these are calculated to enable the object of them to exert her own reason in the discovery of truth. Our chief aim is to enable our pupil, not to examine, but repeat our arguments, and to rest satisfied with our conclusions.

We ought, however, to reflect that a time may arrive when even the most biggotted adherence to the opinions we have taught, and the rules we have prescribed, will not secure her from errour, and when she would find it of more advantage to be able to exert her own reason, than to refer to ours. Is it then fair to deprive her of the power by which she might be enabled to decide on points that intimately concern her happiness, but on the occurrence of which we have not calculated, and against which we have consequently made no provision?

But even these arguments, plain and simple as they are, must be urged in vain to those who are incapable of the effort of attention requisite to examine whether they directly bear upon the subject or not. It is therefore, only with PARENTS who can reason, that they will have any influence, and by such alone can the real and permament interest of a child be kept steadily in view.

While it is the custom to devote the most precious years of life to the acquirements of accomplishments, in which the rational faculty is rarely, or perhaps never exercised, attention will habitually be directed to objects so remote from those to which it must perseveringly be given in every process of reasoning, that when a question of moment is started, the only possible way by which the mind can judge of its merits must be, that it is approved or disapproved by such or such a person, or supposed to favour the opinions of such and such a party.

Too often, indeed, may we observe men who are capable of reasoning wisely and justly, judging of the weight of their opponent's arguments; not by the matter they contain, but by some adventitious circumstances; and still more frequently may we observe, that in discussions on whatever subject, even candid men sometimes seem to forget or to be unconscious of all that is said by the opposite party. Both these evils originate in certain habits of attention:—attention being, in the first instance, attracted to accessory ideas by association; and, in the second, too much absorbed in the contemplation of the speaker's own ideas, to enable him to notice those of his opponent.

It is therefore of the first importance, in the cultivation of the reasonimg faculty, to accustom the mind to what may be called integrity of attention. This habit, essential as it is, can only be obtained by such repeated efforts, as none will have courage to make in whom the love of truth is not paramount. This conclusion is obvious. From the above statement it necessarily follows, that, in order to prepare the mind for the exercise of the reasoning faculty; it is above all things necessary, to inspire it with the love of truth. I do not mean of truth merely as opposed to falsehood, but of truth as the end of knowledge, the object of all science—truth immutable and universal. A.

THE NEW SCHOOL;* OR LANCASTERIAN SYSTEM.

A method has been devised, and after various improvements, seems now to be brought very near

* A new era in education has commenced, and is spread-

to perfection;—by which the blessings of education may be extended to persons of all ranks in society, with a facility of learning which is incalculably augmented to children of every class, and a vast saving of time secured even to those whose circumstances may put economy of money out of the question; while the facility of teaching is so much increased, that, within almost any given time, an indefinite number of instructors can be provided.—This method, which from its regular form and successful experimental improvements, we may well denominate a practical system, having from the first attracted considerable attention, has of late (owing in some degree, to certain hostile demonstrations on the part of the biggoted and persecuting classes of society) increased in popularity, and shown signs of spreading, we would fain hope, over the whole inhabited globe. It is with this view we contribute our aid to so great and good a work, and record the history and progress of the system. Feeling, in common with every true friend of his country and of mankind, the unspeakable importance of diffusing the blessings of instruction among all classes of people, we wish to lay before our readers, the most effectual means employed for this great purpose.

The new school which is gaining ground both in Europe and America was established by Joseph Lancaster, whose zeal and indefatigable industry have done more to diffuse general knowledge than any other person of the last century. For the perusal of our readers we shall state the methods of Mr. Lancaster in the branches of education which his school comprehends,—point out the leading principles on which he appears to have conducted his institution.

The first or lowest class of children are taught to write the printed letters of the Alphabet, and to name the letters when they see them. The same with the figures used in Arithmetic. One day the boy traces the form of the letter, or figure; the next day he tells the name, when he sees the letter. These two methods assist each other. When he is required to write H. for example, the shape of the letter which he saw yesterday assists his manual execution; and the manual execution has associated itself with the name.

In the same manner he learns syllables and words; writing them one day,—reading them the next.

The same process for writing the common epistolary character, and for reading it.

This process made, the class go up to the teacher to read —a class, consisting perhaps of 30. While one pupil is reading, the word, *ex. gr.* Ab-so-lution, is given out with a loud voice by the monitor, and written down by all the other 29 pupils, who are provided with slates for that purpose; which writing is looked over by the monitors, and then another word called, and so on; whoever writes a word spells it of course at the same time, and spells it with much more attention than in the common way. So that there is always one pupil reading, and twenty-nine writing and spelling at the same time; whereas, in the ancient method, the other twenty-nine did nothing.

The first and second classes write on slates, the middle and upper ones on paper with ink. This is a great saving in point of expense;—in books the saving is still greater: a number of children stand round a card suspended on a nail, making a semicircle. On this card are printed the letters in a very large character; these letters the learners are to name, at the request of the monitor. When one spelling class have said their lessons in this manner, they are despatched to some other occupation and another spelling class succeed. In the same manner, syllables and reading lessons are printed on cards, and used with the same beneficial economy. It may here be observed that this simple and very useful method of teaching spelling and reading may be much facilitated by accustoming the classes to spell and read the same or similar words and sentences in books as well as on the cards. To learn to read is to acquire a key to knowledge: but the methods usually adopted by the adherents of the old school, are better calculated to retard than to facilitate improvement. The active modes of instruction which have been brought forward by the disciples of the new system, are fully adequate to the important end.—There are persons, however, who think, that the ease with which knowledge is thus obtained, and its dispersion through the wide mass of society, is unfavourable to the advancement of science; that knowledge easily acquired is easily lost; that it makes scarcely any salutary impressions upon the mind, impeding, instead of invigorating its native force; they assert that the principal use of early learning is to inure the young mind to application; and that the rugged path of scholastic discipline taught the foot of the learner to tread more firmly, and hardened him to bear the labour of climbing the more difficult ascents of literature and science. Undoubtedly the infant mind should be inured to labour; but it can scarcely be denied, that it is better to bestow that labour upon what is within the comprehension of a child, than to cram its memory with what must be unintelligible. A

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ing its beneficial influence with unparralleled success, over every country where liberty dwells, or where the rights of man are ackowledged. The American people, free and independent, dare educate their children in the general principles of science and liberty. They have no legitimate tyrants or inquisitorial and prescribing *Priests* to direct and paralize the aspiring genius of the future hopes of our country.

child is taught to walk upon smooth ground; and no persons in their senses would put an infant on its legs, for the first time, on rugged rocks.

It seems to be a very plain direction to a teacher to proceed from what is known, to the next step which is not known; but there are pedagogues, who choose the retrograde motion of going from what is little known to what is less known. Surely a child may be kept employed, and his faculties may be sufficiently exercised, by gradual instruction, on subjects suited to his capacity, where every step advances; and where the universal and rational incentive to application, *success*, is perceived by the learner.

So far from thinking that there is a royal road to any science, we believe that the road must be long but we do not think it need be rugged. We are convinced that a love for learning may be early induced, by making it agreeable; that the listless idleness of many an excellent scholar arises, not from aversion to application, but from having all the family of pain associated with early instruction. By pain, we do not merely mean the pain of corporeal correction, or of any species of direct punishment. Even where parents or teachers have not recourse to these, they often associate pain indissolubly, with literature. by compelling children to read that which they cannot understand.

Before we close this number, we suggest to those who are employed as teachers or even parents to avoid the absurd and unnatural method of teaching their children *words alone; the thing* or idea to be taught should seem to arise from the circumstances, in which the little persons are placed; and on the proper manner, in which this is managed, will depend the excellence of the system which we wish to see become universal. P.

REVIEW OF BOOKS.

An Abridgment of WALKER'S CRITICAL PRONOUNCING DICTIONARY, *and* EXPOSITOR OF THE ENGLISH LANGUAGE, *by the Rev. Thomas Smith of London. New-York, Stereotyped by E. & J. White, & Starr, published by* DANIEL D. SMITH, *No.* 190 *Greenwich-street. Price* $1.

"Few subjects," says Mr. Walker, in the preface to his excellent dictionary, "have more employed the pens of every class of citizens, than the improvement of the English language. The greatest abilities in the nation have been exerted in cultivating and reforming it. While Johnson and Lowth have been insensibly operating on the orthography and construction of our language, its pronunciation has not been neglected. The importance of a consistent and regular pronunciation was too obvious to be overlooked; and the want of this consistency and regularity induced several ingenious men to endeavour at a reformation; who, by exhibiting the anomalies of pronunciation, and pointing out its analogies, have reclaimed some words that were not irrecoverably fixed in a wrong sound, and prevented others from being perverted by ignorance or caprice."

"Among those writers who deserve the first praise on this subject is Mr. Elphinston. After him Dr. Kendrick contributed a portion of improvement by his Rhetorical Dictionary, in which the words are divided into syllables as they are pronounced, and figures placed over the vowels to indicate their different sounds. To him succeeded Mr. Sheridan, who not only divided the words into syllables, and placed figures over the vowels, as Dr. Kendrick had done, but, by spelling these syllables as they are pronounced, seemed to complete the idea of a pronouncing dictionary, and *to leave but little expectation of future improvement*. It must, indeed, be confessed, that Mr. Sheridan's dictionary is greatly superior to every other that preceded it; and his method of conveying the sound of words, by spelling them as they are pronounced, is highly rational and useful. But here sincerity obliges me to stop. The numerous instances I have given of impropriety, inconsistency, and want of acquaintance with the analogies of the language, sufficiently show how imperfect I think his dictionary is upon the whole. The last writer on the subject is Mr. Nares: but he seems, on many occasions, to have mistaken the best usage, and to have paid too little attention to the first principles of pronunciation."

Mr. Walker then proceeds to speak of his own work. "It not only exhibits the principles of pronunciation on a more extensive plan than others have done—divides the words into syllables, and marks the sounds of the vowels, like Dr. Kendrick—spells the words as they are pronounced, like Mr. Sheridan—and directs the inspector to the rule by the word, like Mr. Nares; but where words are subject to different pronunciation, it shows the reasons, from analogy, for each; produces authorities for one side and the other, and points out the pronunciation which is preferable. In short, I have endeavoured to unite the science of Mr. Elphinston, the method of Mr. Nares, and the general utility of Mr. Sheridan; and, to add to these advantages, have given critical observations on such words as are subject to a diversity of pronunciation."

We have availed ourselves thus largely of the well-written preface of Mr. Walker, as it exhibits, in an intelligible manner, a history of the progress of Eng-

lish orthoepy. And it will serve to show how much labour and study *he* thought it necessary to bestow on a work of this nature. His dictionary is the production of a man of real science, and exhibits the deepest research, and the most perfect acquaintance with his subject. If it should be found that there are some words in it, and we are inclined to think that there are some, to the pronunciation of which the American ear cannot easily be reconciled, it is probable that it may not be long before we shall allow them here the same preference given them by polite speakers in England, and, in the mean time, the established usage of our country may be allowed to prevail. We do not hesitate, therefore, to recommend Walker as the best standard for correct and elegant pronunciation."

We are glad to see that this highly useful book, abridged by the Rev. Thomas Smith of London, has been recently republished in this country, for the use of American Schools. A correct edition of this invaluable work has been a *desideratum* in elementary instruction. The former editions were so garbled and mutilated, and the definitions so defective, that it was little better than a mere pronouncing spelling-book. But, the edition, to which we wish to draw public attention, is free from these defects. It contains all the words in the octavo edition with full and ample definitions. This we consider of vast importance, as it answers every purpose of the large work, as a book of reference, especially for the use of schools.

We congratulate teachers and the youth of our country, on the publication of a work which is calculated to fix a standard for the orthography and orthoepy of our language. The fluctuations of caprice and the arbitrary dictates of pedants, have much retarded that desirable uniformity in school books, which every literary man must wish to see permanently established. But, as public sentiment is now awakened to the best interest of the nation, in the instruction of youth, and in selecting and adopting the most efficient modes of education, we avail ourselves of the opportunity of introducing and recommending this work as one of our permanent school books. The perplexity and expense arising from the discordancy of the multifarious books for the use of schools, are formidable barriers to improvement. Teachers' labours are also much increased by the contradictory schemes of different authors. In one, he finds *tung*, in another *tongue;* in one, the word *nature* is pronounced *nater*, in another *nate yure* or *na-tshure*: this diversity is extremely injurious in the early stages of instruction.

Parents complain loudly, and justly too, of the expense attending the change of books, every time there is a change of teachers. These changes are not so frequently occasioned by a conviction of the utility resulting from this medley of elementary books, as from the interested views of the venders, who think more of the profits arising from them, than they do of the child's progress in learning. The instructors of youth and the public, in general, would render a national benefit, by examining with an impartial eye, the motives which induce to the publication of the incongruous trash which is hawked about our country, under the fascinating appellation of improvement.—Because Mr. Walker has published a good book, it is no rule that every person may publish a bad one, and impose it upon the public.—But if there were a set of school books, used by general consent, much time and money would be saved, and a greater degree of improvement in the elementary principles of the language, secured. The child's first book* ought to accord with his Dictionary. The spelling and pronunciation should be the same, so that his improvement in one would be confirmed in the other. Although perfect uniformity in pronunciation is unattainable, yet persons of a delicate and correct ear must be often sensible, how desirable it would be to have some standard more fixed than the capricious usage of individuals.

At a time, when the different state governments are recommending the adoption of the vast improvements which have been recently made in the means of education, it seems to be a fit time also for them to recommend some mode by which common schools may be furnished with a uniformity of books. This would remove one of the greatest obstacles which the friends of solid education have to encounter.

In the state of New-York the Lancasterian system is about to be adopted, and although that system does not require, that every scholar should be loaded with an accumulation of books, such as spelling books, dictionaries and grammars, yet it requires that some books should be used. And those should be in unison with the system, they should contain a uniform orthography and pronunciation, and besides should embrace all the improvements in the system. Were this principle, sanctioned by the Legislature, the different district school committees under the direction of the superintendant of common schools, might direct what books should be used and not leave the choice of them wholly, to the ignorance or caprice of itinerant teachers. If teachers are not conversant with the improved system, they are not fit to teach in any establi shment founded on that pla n.

We ought not to conclude our remarks, without expressing our approbation of the spirit and enterprise of the publisher of the first American edition of Walk-

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* The editors with deference refer the reader to the American School class books, for a practical illustration of this subject. These books are designed to accompany Walker's Dictionary, and to fill up the chasm in elementary instruction. They embrace the improved mode of teaching, and are calculated to aid in effecting the complete adoption of the Lancasterian system.

er's genuine dictionary. Mr. D. Smith's judgment has been well exerted in selecting from the multitude of European publications, a book, which of all others, was most wanted in this country. And of the manner in which it is executed, we need not, say more than it is one of the best specimens of stereotype which has been executed by Messrs. E. & J. White & Starr of this city.

ON RETIREMENT.

The silent Virtues of a good Man in Solitude, are more amiable than all the noisy Honours of active Life.
POPE.

The love of retirement has, in all ages, adhered very closely to those minds, which have been most enlarged by knowledge, or elevated by genius. Those that have enjoyed every thing that is generally supposed to confer happiness, have been forced to seek it in the shades of privacy. Though they have possessed both power and riches, and been, therefore, surrounded by men, who considered it as their chief interest to remove from them every thing that might offend their ease, ruffle their tranquillity, or interrupt their pleasure, they have soon felt the languors of satiety, and found themselves unable to pursue the race of life, except with frequent respirations of intermediate solitude.

To produce this disposition nothing appears requisite but a quick sensibility, and active imagination; for, without being devoted to the pursuit of virtue, or the study of science, a man, whose faculties enable him to make ready comparisons of the present with the past, will find such a constant recurrence of the same pleasures, the same troubles, the same expectations, and the same disappointments, that he will gladly snatch an hour of retreat, to let his thoughts expatiate at large, and seek for that variety in his own ideas, which the objects of sense cannot afford him.

Nor will greatness, or abundance, contribute to exempt him from the importunities of this desire; for, if he is born to think, he cannot restrain himself from a thousand inquiries and speculations, which he must pursue by his own reason, and which the splendor of his condition can only hinder; for those who are most exalted above dependance or controul, are yet condemned to pay so large a tribute of their time to custom, ceremony and popularity, that according to the *Greek* proverb, no man in the house is more a slave than the master.

When a King asked *Euclid* the mathematician, whether he could not explain his art to him in a more compendious manner, he was answered, that there was no royal way to geometry. Other things may be seized by might, or purchased with money; but knowledge is to be gained only by study, and study to be prosecuted only in retirement.

These are some of the motives which have had power to sequester Kings and heroes from the crouds that soothed them with flatteries, or inspirited them with acclamations; but their efficacy seems confined to superior abilities, and to operate little upon the common classes of mankind, to whose conceptions the present assemblage of things is adequate, and who seldom range beyond those entertainments and vexations, which solicit their attention by pressing on their senses.

But there is an universal reason for some stated intervals of solitude, which the institutions of the church call upon me, now especially, to mention; a reason, which extends as wide as moral duty, or the hopes of divine favour in a future state, and which ought to influence all ranks of life, and all degrees of intellect; since none can imagine themselves not comprehended in its obligation, but such as determine to set their Maker at defiance by obstinate wickedness, or whose enthusiastic security of his approbation places them above external ordinances and all human means of improvement.

The great task of the man, who conducts his life by the precepts of religion, is to make the future predominate over the present, to impress upon his own mind so strong a sense of the importance of obedience to the divine will, of the value of the reward promised to virtue, and the terrors of the punishment denounced against crimes, as may overbear all the temptations which temporal hope or fear may bring in his way, and enable him to bid equal defiance to joy and sorrow, to turn away at one time from the allurements of ambition, and push forward at another against the threats of calamity.

It is not without reason that the apostle represents our passage through this stage of our existence by images drawn from the alarms and solicitude of a military life; for we are placed in such a state, that almost every thing about us conspires against our chief interest. We are in danger from whatever can get possession of our thoughts; all that can excite in us either pain or pleasure has a tendency to obstruct the way that leads to happiness, and either to turn us aside, or retard our progress.

Our senses, our appetites and our passions, are our lawful and faithful guides, in most things that relate solely to this life, and, therefore, by the hourly necessity of consulting them, we gradually sink into an implicit submission, and habitual confidence. Every act of compliance with their motions facilitates a second compliance, every new step towards depravity is made with less reluctance than the former; and thus the descent to life merely sensual is perpetually accelerated.

The senses have not only that advantage over conscience, which things necessary must always have

over things chosen, but they have likewise a kind of prescription in their favour. We feared pain much earlier than we apprehended guilt, and were delighted with the sensations of pleasure, before we had capacities to be charmed with the beauty of rectitude. To this power, thus early established, and incessantly increasing, it must be remembered, that almost every man has, in some part of his life, added new strength by a voluntary or negligent subjection of himself; for who is there that has not instigated his appetites by indulgence, or suffered them by an unresisting neutrality to enlarge their dominion, and multiply their demands?

From the necessity of dispossessing the sensual faculties of the influence which they must naturally gain by this preoccupation of the soul, arises that conflict between opposite desires, in the first endeavours after a religious life; which, however enthusiastically it may have been described, or however contemptuously ridiculed, will naturally be felt in some degree, though varied without end, by different tempers of mind, and innumerable circumstances of health or condition, greater or less fervour, more or fewer temptations to relapse.

From the perpetual necessity of consulting the animal faculties, in our provision for the present Life, arises the difficulty of withstanding their impulses, even in cases where they ought to be of no weight; for the objects of sense strike unsought, its motions are instantaneous, we are accustomed to follow their directions, and therefore often submit to the sentence without examining the authority of the judge.

Thus it appears upon a philosophical estimate, that supposing the mind, at any certain time, in an equipoise between the pleasures of this life, and the hopes of futurity, present objects falling more frequently into the scale would in time preponderate, and that our regard for an invisible state would grow every moment weaker, till at last it would lose all its activity, and become absolutely without effect.

To prevent this dreadful event, the balance is put into our own hands, and we have power to transfer the weight to either side. The motives to a life of holiness are infinite, not less than the favour or anger of omnipotence, not less than eternity of happiness or misery. But these can only influence our conduct as they gain our attention, which the business, or diversions of the world are always calling off by contrary attractions.

The great art therefore of holiness, and the end for which all the rites of religion seem to be instituted is the perpetual renovation of the motives to virtue, by a voluntary employment of our mind in the contemplation of its excellence, its importance, and its necessity, which in proportion as they are more frequently and more willingly resolved, gain a more forcible and permanent influence, 'till in time they become reigning ideas, the standing principles of action, and the test by which every thing proposed to the judgment is rejected or approved.

To facilitate this change of our affections, it is necessary that we weaken the temptations of the world, by retiring at certain seasons from it; for its influence arising only from its presence, is much lessened when it becomes the object of solitary meditation. A constant residence amidst noise and pleasure inevitably obliterates the impressions of piety, and a frequent abstraction of ourselves into a state, where this life, like the next, operates only upon the reason, will reinstate religion in its just authority, even without those irradiations from above, the hope of which I have yet no intention to withdraw from the sincere and the diligent.

This is that conquest of the world and of ourselves, which has been always considered as the perfection of human nature, and this is only to be obtained by fervent prayer, steady resolutions, and frequent retirement from folly and vanity, from the cares of avarice, and the joys of intemperance, from the lulling sounds of deceitful flattery, and the tempting sight of prosperous wickedness.

J

PHILOLOGICAL DEPARTMENT.

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GRAMMAR. *Continued from page 58.*

SECT. III.

Particular and General Nouns.

NOUNS are either particular or general. Particular nouns, or proper names, are those which are applicable only to individuals. General nouns (commonly called general terms) are those which are applied to a plurality of objects possessing a mutual resemblance.

When human knowledge becomes somewhat extended, it is impossible to conduct language by means of proper names alone. Individual objects are too numerous to receive distinct names; and, if these were imposed, it would be impossible for the most tenacious memory to retain the nouns of any language. A sense of this inconvenience has been supposed by some grammarians to have given origin to the expedient of arranging objects in genera, each genus including all the individuals which resemble one another in certain particulars, and which on that account receive one common name. Such are the words "tree," "field," "house," "bird," "horse," "elephant," "man," "woman." This history of general terms, however, is not

agreeable to fact. Mankind have a *native bias* to give the same name to objects which are nearly alike. They delight to show, in this manner, that they recognise in a new object a character similar to that of something previously known. They prefer the use of words habitually significant to the coining of terms entirely new. This tendency is observed very early in children. They apply the same words, even in cases in which the resemblances of objects are not sufficiently strong to render the general application of a term satisfactory. A child introduced for the first time to the sight of an uncommon animal, such as a camel, gives it an appellation borrowed from some familiar object. First, observing its majestic size, he calls it a horse; next, the form of its head, he calls it a sheep; and, by passing from one designation to another, he shows a powerful inclination to apply to it some general term. The application of common names is always most constant where the mutual resemblances of individuals are greatest. When they are perfectly alike, it is as natural to give the same name constantly to them all as to give the same name at all times to an individual.

It has been said that all terms are at first proper names. But the name which we first apply to an object is proper only when we are acquainted with no other object resembling it, or when an individual so frequently claims our separate interest, that a name to distinguish it from all others is absolutely necessary. This last circumstance is the foundation of the application of proper names from the very beginning to all our familiar friends, notwithstanding the obvious mutual resemblances of human beings. Under other circumstances, we no sooner perceive resemblances than we form general terms, or, which is the same thing, give a general application to such terms as we possess. With regard to the greater part of nouns, it is probably nearer the truth to say that general terms are first in order, and that men, finding it convenient to designate individuals by single terms, consequently create proper names, than to maintain that a sense of the inconvenience arising from the mere multiplicity of proper names gives rise to the abridged method of forming general terms. By a tenacious disputant, it might be contended that we become acquainted with objects one by one, and that therefore, if a name is given to the first object of our knowledge as soon as known, it must be a proper name; but this speculation supposes man to form words much sooner than it is possible for him to do, that is, before he possesses any variety of knowledge; a state of things which precludes all occasion for language as well as the possibility of articulation.

Here it will be requisite to describe the nature of general ideas, a subject which has given rise to much controversy. Some have maintained that no such ideas exist; others, that they owe their existence to the previous formation of general terms. The chief argument against the existence of general ideas is deduced from the fact, that when we endeavour to think separately of the circumstance which is common to all the individuals of a genus, we can obtain no distinct image. To think of "man in general" is said to be impossible. The man of whom we think must be tall or short, naked or clothed, fair or dark, lively or dull. In like manner, if we endeavour to form a general idea of "a tree" by contemplating nothing but what is common to all trees, the image no longer resembles any tree.

The denial of the existence of general ideas has sometimes been accompanied with a misconception, arising from the confounding of two things which are in themselves distinct; the existence of ideas in the mind, and the existence of external objects. It seems to have been tacitly taken for granted, that the same laws which regulate external objects should apply to the ideas which the mind entertains concerning them. All external objects are individuals, and therefore it has been supposed that all our ideas of them ought to be particular. External objects retain during the lapse of time their individual identity. The names assigned to them have therefore been supposed to retain one constant meaning in our minds, and this constancy has been regarded as the foundation of our ideas of particularity. Hence proper names have been supposed to be peculiarly exact in their meaning. But the fact is, that, even when we think of the same individuals in nature, our ideas at one time are different from what they are at another. They depend on the state of the mind and on the point of view which we take of the object, independently of any change to which its real qualities are liable. If particularity implies invariableness, our ideas, as existing at a specified instant of time, are the only ones that can be regarded as particular. Ideas of the same external object existing at different times, though resembling each other, may also in some respects differ; and, however nearly they may coincide, they are always distinct facts in the mind. When two ideas of the same external object entertained at different times are placed together and called one idea, this idea is general in its nature. Thus proper names have not such a steadiness in the ideas which they excite as has been ascribed to them. We shall further find that the ideas attached at any particular moment to a general term, are not so vague as has been supposed. They have a distinct character; they form a definite affection or state of mind, and that state of mind is a particular or individual fact. Individuality, however, as relating to the idea in the mind, does not form the foundation of any sort of words, because words are understood

from time to time, and are considered as retaining the same meaning independently of the fluctuations of human thought. The foundation of this supposed constancy is, that the ideas attached to them have always a mutual similarity. They differ from one another, but this difference has its bounds both in proper names and general terms. The ideas attached at different times to proper names differ according to the situations and aspects in which objects are viewed, and according as the mind takes in the whole, or only a part of any object represented. It is evident that the ideas attached to general terms are subjected to the very same variations. They are also liable to variations peculiar to themselves, arising from the dissimilarities subsisting among individuals of the same genus. This cause of diversity seems to have been exclusively attended to in the inquiries instituted into the subject of general terms. Yet it is not always greater than the other. In some instances it has no effect. This takes place wherever these diversities are so slight or so void of interest as to escape observation. Such are the differences betwixt one *fly*, one *swallow*, or one *mouse*, and another. The general terms applied to these objects excite no greater variety of ideas than is liable to be excited by the proper names of individuals belonging to the respective species. It is of importance now to remark, that even general words, significant of classes of beings among which prominent distinctions exist, along with the similarities which form the foundation of the general application of the words, are to be considered as retaining from time to time, the same meaning, because the ideas which they excite are variable only within certain bounds. Some definite idea is therefore strictly attached to each term. This may be considered as a detached thought, in so far as it may be made the only, or at least the leading object of attention. We may think of the objects signified by any term as one genus, and investigate their common properties. The versatile nature of the human mind makes it prone to mingle its ideas of the properties with various others, and these others are for the most part such as are combined with the character of the genus to form particular individuals. But the general property may be principally thought of, as well as solely designated.

With regard to the opinion of those who allow the existence of general ideas, yet maintain that they owe their existence to the formation of general terms, it seems to us completely incongruous. A term is invented for the purpose of expressing an idea. The recognizance of a resemblance among a plurality of individuals is the foundation of a general idea, and this always exists before any general term is invented, and before any term which was formerly a proper name receives a generic application.

The resemblances among objects have various degrees of extent. Some genera are much more comprehensive than others. Some include subordinate divisions into more limited genera. The word *genus*, as technically used in the arrangements of natural history, represents one stage of subdivision those immediately subordinate to it are called *species*. If it is found convenient to subdivide these, the subdivisions are called *sub-species* or *varieties*. Those which are more comprehensive than genera are called *orders*. Others still more comprehensive are called *classes*. The most general division of all is into *kingdoms*, called the animal, the vegetable, and the mineral kingdom.

In the greater part of objects, however, the resemblances pass gradually into one another. One object resembles many others, each in different respects and in different degrees. Every point of resemblance and of difference has a generic name, because many exemplifications of all of them occur. In consequence of the endless variety of existing combinations, we may designate a particular object, by enumerating the general properties which meet in it to form its character. It is thus that we describe either a limited species or a single individual. This may be done without giving it an appropriate name. We never pursue a system of classification to its utmost extent, so as to give characters to all the subdivisions that might be formed. However near we have brought any two objects together by the limitations of our specific characters, it is still possible to find out some circumstance in which they differ, either in their intrinsic nature or their external relations; and, if upon this, in union with their other characters, we were to establish a term in our subdivisions, the gradations would be so much extended as to become equally numerous with individuals. Thus classification would produce no compendiousness of plan. It would give rise to as many names as there are individuals, besides encumbering us with the names of all the subdivisions. But we have no motives for proceeding in this manner. In most instances, the peculiarities of individuals, or of very limited species, do not sufficiently interest us. When they excite occasional interest, they are designated as possessing certain specific assemblages of qualities expressed by general terms, and our descriptions are aided by the employment of clear references. To designate the properties of interesting genera, species, and individuals, is a great part of the object of written language. It often happens that not only sentences but books are made subservient to the description of one object. Many others are indeed introduced for illustrating the relations sustained by the leading one; relations which undoubtedly constitute part of the character of these others, and more or less promote the elucidation of all.

The terms which designate single qualities are

always general. The cause of this feature in language is worthy of investigation. The fact itself has given rise to an idea, that single qualities are not individuals; that they are mere modes applicable to different individual substances; or that, if each quality is an universal individual, it is moveable in its relations with other qualities. But single qualities, wherever they come under our knowledge, are in reality different individuals. The whiteness of snow, and the whiteness of bleached linen, are different objects. The whiteness of one piece of linen is a separate object from the whiteness of another. It is the similarity, more or less perfect, of the objects, in all instances of whiteness, that gives rise to the general name of the colour; and it is for no other reason that one common name is given to concrete assemblages of objects possessing a mutual resemblance, whether in arrangement or in kind. It is for the same reason that a plurality of objects receives the name of "stone," "mountain," or "field." Yet, however exactly coincident the colour of one object may be with that of another, and however hopeless a task it may be to attempt to distinguish them, except by the differences of their association with other qualities, the colour is in each case a separate individual. It has no proper name; because, while our attention is attracted by it, we are at the same time presented with other qualities (that is, other objects) closely conjoined with it, and it is the combined scene that fixes our attention. It is to the combined scene that we apply a name, in consequence of the joint interest which we and others take in it. The only interest that we have in marking a separate quality of this scene is, to point it out as a circumstance in which it resembles others. Hence it is only when we perceive similar objects, that we give this single quality a name. Thus the word in its very creation is general. The exactness of the resemblance which different exemplifications of single qualities have to each other is another reason why generic terms alone are applied to them. Although different objects, they are not intrinsically distinguishable, and the idea which we apply to a plurality of instances of them resembles, in its constancy, the idea attached to the same individual.

Even when any congeries of objects has a quality (or, in other words, comprehends an object) altogether peculiar, we give it no distinct name. If it is known to other persons, we refer to it by means of the concrete name by which the group of which it forms a part is known. If it is a peculiar sensation, as some of those which arise from disease, the only description that we give of it to one who has not experienced it, consists in a statement of its total dissimilarity to every other. Even when a kind of qualities belongs to a limited range of assemblages, (or, in other words, a limited species of substances,) we borrow the name of the quality from the name of the concrete assemblage of which it forms a part. The taste peculiar to an apple, an orange, a pear, or a cucumber, although forming each a peculiar class of tastes, has for its only designation a reference to the species of fruit with which it is connected.

[*To be Continued.*]

GEOGRAPHICAL DEPARTMENT.

Continued from page 60.

From the west of Europe we naturally pass to Africa, and we find that the Romans were acquainted with about one-third of that continent. Pliny, from a statement by Agrippa, estimates the breadth from north to south, through Cyrenaïca and the country of the Garamantes, that is from Barca towards Bournu, at 910 Roman miles, a distance from the Mediterranean which falls considerably short of the Niger. It appears, however, that they were not altogether ignorant of that river in another direction. Pliny, on the authority of Juba, king of Mauritania, mentions that the Nile rises from a lake in the interior of that country, and that, after running under ground through a desert of twenty days journey in extent, it makes its appearance again on the confines of Ethiopa, where its source is called Nigris. From this modern geographers have concluded, that the desert here mentioned is the great desert of Sahara, that what Pliny calls the Nile is only a small river running along the south side of Mount Atlas, and that its pretended reappearance is no other than the source of the Niger or Joliba. In this our readers will recognise the opinion of Herodotus, expressed in a more detailed form, that the Niger and the Nile are the same river, and they will also observe, that the Roman geographers, in the time of Pliny, were not better acquainted with the western part of Africa, than their rivals the Carthaginians had been. Ptolemy, indeed, distinctly mentions the Niger, and enumerates some of the towns situated on its banks, as Tucabath, Nigira, Ta-Gana and Panagra, in which later geographers have discovered the modern towns of Tombuctoo, Cashnah, Ganah, and Wangara; but even his account of the interior is very partial and indistinct. Of the Canaries, the Romans undoubtedly knew more than the Carthaginians, though these islands were still regarded too much as the region of fiction. They were called in general the *Fortunate Isles*, a name famous with

the poets, and perhaps too frequently employed in the more sober details of the historian. Among the particular names, we find Canaria and Nivaria, the former obviously the same with modern Canary, the latter, perhaps, denoting Teneriffe with its snowy summit. On the eastern side of Africa, the geography of the Romans was neither very distinct nor very extensive. They seem to have been acquainted with the Nile, as far as the Automales of Herodotus, but not to have penetrated farther. On the shores of the Indian ocean, their navigation terminated at the promontory of Prasum, a point which Ptolemy represents as lying to the south of the equator, but which, from a careful investigation of the measures employed by him, is found to correspond with Cape Brava, two degrees to the north of the line.

When we turn to Asia, we find the geographical improvements of the Romans much more interesting in a scientific point of view, as well as more important in regard to commerce. These improvements may be almost wholly ascribed to the discovery of the monsoons, by which the communication with India was completely altered, and the trade of that rich and luxurious country prodigiously extended. Embarking at the Egyptian ports on the Red Sea, and passing the straits of Babel-mandel, the merchant was carried by the south-west monsoon, or Hippalus, so called from its discoverer, directly to the peninsula of Hindostan, and back again by the Vulturnus, or north-east monsoon, in the course of the same year. This navigation was first undertaken during the reign of Augstus, till which time the route to India was either across the desert from Syria to the Euphrates, down the Persian gulf and along the northern coast of the Arabian sea to the mouth of the Indus ; or farther to the north by the Caspian sea, and the Oxus or Jihon. Some ancient writers represent the latter as much more easily accomplished than it could possibly have been, by supposing that the Oxus fell into the Caspian Sea, or rather that Lake Aral was a gulf of that sea. But even if this had been the case, the conveyance of merchandise by such a route, must have been exceedingly slow, expensive, and precarious, compared with the direct course across the Arabian Sea. By the latter, also, the western coast of the peninsula of India became better known, and opened the way for other discoveries in the interior as well as on the Bay of Bengal. The whole extent of country south of the line joining the mouth of the Indus and the mouth of the Ganges, was soon explored, and is described with considerable minuteness by Pliny and Ptolemy. Of the north of India, the accounts of these writers are extremely vague ; but it appears that Thibet was pretty well known under the name of Serica. On this subject, indeed, there has been much learned disquisition among critics and geographers, some supposing, as we have now stated, that Serica included Thibet, with part of the north of India, while others consider it as denoting China. This last opinion is chiefly founded on the calculations of Ptolomy, by which Serica appears to be situated in the middle of the Pacific Ocean ; but these calculations are obviously in direct contradiction, not only to Pliny, but to Ptolemy himself. According to the former, Asia terminated a little to the east of the Ganges and the north of the Caspian Sea ; and he distinctly says that the Seres inhabit the middle of the eastern regions, of which the Scythians and Indians occupy the two extremes. The latter also describes Serica as bounded on the east by unexplored countries, and on the south by the mountains of Emondus, (the modern Emod, Hema, or Himmala), which separate it from India. It is unnecessary to observe, that neither of these accounts can possibly apply to China, while both are accurate if understood of Thibet. "Here, then," to use the words of a modern geographer, "among the Alps of Asia, and on the borders of the great desart of Shamo, expired the last ray of the geographical knowledge of the ancients."

To pursue the history of geography through the period on which we are now about to enter, would be to trace the decay of every thing dignified and ennobling, and to mark the progress of ignorance and barbarism, triumphing over science and civilization. We should find, in the course of a few centuries, the inhabitants of the whole civilized world completely extirpated, and succeeded by a race of men who knew nothing of themselves farther back than their recollection carried them, and nothing of the rest of mankind but what they learned during their career of victory and bloodshed. We should perceive the termination of all friendly intercourse among different countries, and wars carried on no longer with a view to conquer and civilize, but to extirpate and destroy. It is not consistent, however, either with the nature or the limits of the present article to enter into a minute detail of the circumstances that conspired to accelerate the destruction of the Roman empire, or enumerate the various tribes that took possession of the different countries of Europe, and the revolutions that took place in their manners and form of government. We shall only observe, therefore, that during the latter period of the Roman history, literature and the fine arts had in a great measure banished the cultivation of science, and the ardour of curiosity, so necessary in all laborious researches, but particularly for geographical discovery, had degenerated into a love of indolence and ease. A great deal still remained to be done by active and enterprizing adventurers, before the science of geography could be successfully prosecuted in the retirement of an acad-

emy; but enterprize and adventure were no longer to be found among a people enervated by every species of luxury and dissipation. We find, accordingly, that from the time of Ptolemy, till the overthrow of the Roman empire, there is scarcely a single fact on record that deserves a place in the history of geographical discoveries. From that period, the progress of all knowledge was retrograde. The monuments of learning that had been reared by the persevering labours of many ages, were successively overthrown; till Alexandria itself, the last refuge of persecuted science, fell a sacrifice to the merciless fury of a barbarous fanatic. The work of devastation was now complete. The last faint glimmerings of intellectual light were extinguished, and the gross perversion of religious principle in Europe, with the establishment of a false system in Asia, threatened to perpetuate that darkness which had enveloped the civilized world.

Such was the state, and such the prospect, of literature and science about the middle of the seventeenth century. There was still one country, however, which had not yet felt the shock of revolution, and from which the light of science was again destined to emanate. Arabia, from time immemorial, had preserved its independence; and while the rest of the civilized world was hurrying into decay, it continued to enjoy its ancient laws and privileges, and made considerable progress in many of the useful arts. Even the establishment of Mahometanism, at first so fatal in its operation, and which, like every other false system of religion, might have been supposed inimical to the progress of science, eventually contributed to the advancement of geographical knowledge. The Arabians, possessing a great extent of sea-coast, had from a very early period carried on an extensive trade, which was considerably increased by the conquests of Mahomet and his immediate successors. In their eagerness to propagate the doctrines of Islamism, the Arabian caliphs extended their arms to the pillars of Hercules in the west, and the banks of the Ganges in the east, and thus geographical discovery was once more associated with its most powerful ally, a spirit of military and commercial adventure. By the middle of the ninth century, the Arabians had formed settlements in different parts of China, and established an intercourse with Madagascar, the Maldives, Ceylon, Sumatra, Java, and other oriental islands. Nor was it to geography, considered in a commercial point of view, that their attention was exclusively directed. Their generals had orders to procure geographical accounts of all the countries which they subdued; and we find the Caliph Al Mamon, as early as 833, obtaining the measurement of a degree of latitude in the desert of Sandgair, for the purpose of ascertaining the magnitude of the earth.

ARITHMETICAL AND MATHEMATICAL DEPARTMENT.

Continued from page 63.

OF THE SYSTEM OF NOTATION USED BY THE GREEKS.

As we mentioned in our last number three modes of Arithmetical Notation, and only illustrated that which is used in modern times and by those nations who are eminent for their extensive knowledge of science; it remains for us to give a short account of those methods which were practised by the Greeks and Romans, the nations formerly most distinguished for their Arithmetical knowledge. The Greeks divided the twenty four letters of their alphabet into three classes, corresponding to our Units, tens and hundreds; but as the twenty-four letters were insufficient it was necessary to add three additional characters to complete the number for the nine digits. The ϛ called *episiêmon* was placed in the first class immediately after ε the letter answering to five, and therefore was the symbol for 6. The koppa and *sanpi* represented by ϟ and ϡ completed the series of tens and hundreds or stood for 90 and 900.

Hence their notation was as follows:

1	2	3	4	5	6	7	8	9
α	β	γ	δ	ε	ϛ	ζ	η	θ
10	20	30	40	50	60	70	80	90
ι	κ	λ	μ	ν	ξ	ο	π	ϟ
100	200	300	400	500	600	700	800	900
ρ	σ	τ	υ	φ	χ	ψ	ω	ϡ

It will easily be perceived this notation can express numbers, only as far as 999. For the thousands they placed a point under each character; thus for

1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, they wrote

α, β, γ, δ, ε, ϛ, ζ, η, θ

By using these in connection with the others they could easily exhibit all numbers less than 10,000; as follow:

9999 they represented by	θ, ϡθ
999	ϡθ
99	ϟθ
2824	β, ωκδ
8036	η, λϛ
6420	ϛ, υκ
8001	η, α
2000	β,

Besides using the point in this manner they employed the compound character $\frac{\alpha}{M}$; to express 10,000. By thus placing the initial of the word *myriad* under the different numerals they augmented their power ten thousand fold. By this artifice they were enabled to write any number under one Million, thus,

10,000 was written	$\frac{\alpha}{M}$
20,000	$\frac{\beta}{M}$
30,000	$\frac{\gamma}{M}$
100,000	$\frac{\iota}{M}$
800,000	$\frac{\pi}{M}$
9,720,000	$\frac{\theta\omega\beta}{M}$

Here we see that by placing the M under any number, had the same effect as our annexing *four* ciphers. Such was the system of numeration used by the Greeks which was well enough adapted to the practical concerns of life, but it was requisite that improvements should be made to embrace the purposes of scientific investigation. And it is now ascertained that Archimedes composed a tract for that purpose in which he assumed the square of the myriad as the root of a new scale of progression. He proposed to carry this system as far as eight periods, which would correspond to a number for which, according to our scale we use sixty-four digits. Apollonius after his great predecessor, simplified this notation, and also formed a collection of rules in order to facilitate Arithmetical calculations.*

We shall now give a few examples of arithmetical calculations as made by the Greeks which will in some degree elucidate what we have said on this subject, and show the manner in which that very ingenious people, with a notation decidedly inferior to our own, were enabled to perform calculations of considerable difficulty.

EXAMPLE IN ADDITION.

Greek	$\omega\mu\zeta\ \gamma\mu\kappa\alpha$	Modern	847 8921
	$\xi\ \ \iota$		60 3400
	$\vartheta\eta\ \ \beta\tau\kappa\alpha$		908 2321

EXAMPLE IN SUBTRACTION.

Greek	$\theta\ \gamma\kappa\lambda\zeta$	Modern	9 3696
	$\beta\ \nu\theta$		2 3409
	$\zeta\ \sigma\kappa\zeta$		7 0227

EXAMPLE IN MULTIPLICATION.

Greek	$\sigma\xi_s$	Modern	265
	$\sigma\xi_s$		265
	$\delta\alpha\beta\alpha$		4
	M M		12
	$\frac{\alpha\beta\gamma\kappa\tau}{M}$		1
			12
	$\alpha\tau\kappa_s$		3 6
			3
	$\frac{\zeta\ \sigma\kappa_s}{M}$		1
			3
			2 5
			70225

We shall explain this last operation. First σ multiplied by σ gives δ or 200 × 200=40,000; σ into $_s$ gives $\alpha\beta$, or 200 × 60=12,000; and σ × into $_s$ gives α, or 200 × 5=1000. In the next line $_s$ × into σ produces a β, or 60 × 200=12,000; $_s$ × into $_s$ gives $\gamma\kappa$, or 60 × 60=3600; and $_s$ × $_s$ make τ or 60 × 50=300, In the last line $_s$ × σ gives the product α or 5 × 200=1000 $_s$ into $_s$ gives τ or 5 × 60=300; and $_s$ × $_s$ produces κ_s, or 5 × 5-25.

Having thus illustrated the example in Multiplication, we shall insert another which will afford a little amusement to our young readers, and the operation may be inserted in a future number of our paper.

Let $\varsigma\nu\gamma$ be multiplied by itself and the result exhibited by the Greek and Modern methods astaught above.

From these few examples a slight acquaintance may be derived, of the methods by which the Greeks performed Arithmetical operations in the primary rules, and it will be easily perceived that they were much inferior to our modern ones.

We shall now proceed to give a brief view of the *Roman Notation.*

The Roman Numerical characters are seven. As they have undergone little subsequent change they may be considered as very ancient specimens of notation. The simple characters were as follow:

1 was represented by	I
5	V
10	X
50	L
100	C
500	D
1000	M

Hence we perceive that to denote *one*, a simple vertical line was assumed 1; this was doubtless the

* The curious reader who wishes to see this subject treated more particularly and in a very elegant manner is referred to a learned essay on it annexed to the French translation of the works of Archimedes; by Delambre, of the National Institute.

most obvious method, and one which with the exception of the Modern Indians was universally used. The repetition of this line expressed, *two*, *three*, and *four*, but it was soon found that the necessary repetition of these lines as far as nine times, was tedious and perplexing. Reduced or curtailed marks were therefore introduced, and as five exhausts all the fingers of one hand, it is probable that it was distinguished by an appropriate character, as two lines placed in the form V or sometimes the under half of the character X for ten; Six would then be written VI, seven VII, eight, VIII. nine, VIIII. But to avoid the frequent repetition of the I, it was prefixed to the principal character, and in this situation diminished its value: Thus instead of four lines it seemed preferable to write IV, for *eight* and *nine*, they wrote IIX and IX. Ten being written X, eleven would then be XI; twelve XII; thirteen XIII; fourteen, XIIII; fifteen XV; and proceeding thus till they arrived at twenty, it would be represented by XX on the same principle that II was written for the number two. Thirty and forty would be written XXX, XXXX: and as it is probable that the quintuple scale was originally used; the number fifty would be represented by *three* lines or some new combination of *two*.

The most obvious method of combining them so as to be sufficiently distinct from the preceding combinations was to place them thus L, or at right angles to each other. This character being adopted to represent fifty, we should have sixty, seventy, eighty- and ninety written LX, LXX, LXXX, LXXXX. Three lines or the open square were employed to represent a hundred, or third stage of numeration. This symbol may be considered as the most simple combination of LL. But when the letters of their alphabet lent their aid to this system of numeration, those letters which bore the greatest resemblance to the above characters were adopted in their place. and this we presume is the reason why C, is now written for the open square.

Two hundred would then be expressed by CC and three and four hundred by CCC, & CCCC. As three lines combined (as we have above explained) were the character for one hundred, *four* interwoven ones were written thus M, or $C|\supset$ for *one thousand*, and the half of this or $|\supset$ was used to express *five hundred*.

This character $|\supset$ was afterwards superseded by the roman D for the same reason that C was written for.

Six hundred would then be written DC, seven hundred DCC, eight hundred DCCC, and nine hundred by DCCCC.

The last improvement was the introduction of characters to express numbers beyond one thousand. The method of doing this was analogous to the general scheme of notation; for taking the character $C|\supset$ for a thousand, the straight line was retained while the C on each side of it was successively added to mark the decuple increase. Thus $CC|\supset\supset$ and $CCC|\supset\supset\supset$ were respectively written for 10,000 and 100,000 and the halves of these $|\supset\supset$, $|\supset\supset\supset$ for 5,000 and 50,000.

Such we presume is the origin of Roman numerals; which still continue to be partially used, notwithstanding the superior advantages of our own notation. It may not therefore be useless to give some examples in order to render the subject more familiar to our junior readers.

MDCXCVI will be expressed by 1696 in our notation,

MDCLXXV	1675
$CCC|\supset\supset\supset$	60,000

But it may be remarked here that this last number was represented by $\overline{LX}$, as a line over any number increases it a thousand fold.

On the same principle 100,000 would be expressed by $\overline{C}$ and in the common way by $CCC|\supset\supset\supset$, and 1,000,000, by $\overline{M}$ or $CCCC|\supset\supset\supset\supset$ also 2,000,000 was written $\overline{MM}$ &c. &c.

TO CORRESPONDENTS.

We have received from the Rev. Dr. Bates, President of Middlebury College, his *Inaugural Oration*, which we intend to publish in our next number. It contains many excellent sentiments, expressed in a very pleasing style. We invite the continuance of the favours of so able a correspondent.

Z. (of Catskill) is informed that the hints suggested relative to superior places of education for females have in a manner been put into operation in this city. Some of our Seminaries for the instruction of females embrace a very liberal and scientific course of studies; but we should be glad to see similar ones established in every section of our country. With the request of our correspondent we shall endeavour to comply in some of our future numbers. Our opinion on the subject, "of the expediency of *female institutions* of a more elevated character than academies, and not far inferior to our colleges, where our daughters should be instructed in the *sciences*, as well as in literature and the fine arts," and the influence which, properly educated females have in society, is coincident with Z's.

We would suggest to our correspondent *Quintillian*, a reconsideration of the subject upon which he has written. Although the essay contains some judicious sentiments, yet we deem it unfit to appear before the public. The style is too *ambitious*, and there is a continual endeavour after rhetorical figures. In fact more attention seems to have been given to *style*, than to *thought*.

An essay "on the object and utility of Criticism" is received. The writer has viewed the subject in a light different from what we have formerly seen. His observations are correct. We do not altogether approve of the style, which is rather declamatory; with the exception of this and one or two trifling faults, we think the communication well written. We invite his correspondence.